

April 91 **PC PLUS** 241

BEGINNERS'

BACK TO BASICS

This month we focus on some of the more general MS-DOS techniques. Used carefully, these methods will help you get the most from your system.

Normally, when you perform an MS-DOS command, the results are sent to its output device – the display, in most cases, or the printer (with the PRINT command, for example). But you can, if you wish, send the output elsewhere.

REDIRECTION

If you enter DIR at the prompt, the contents of the current directory are shown on-screen. Fine, but what if you want to print them out? With a short directory listing you can use [PrtScr] to dump the contents of the display (or preferably redirect the output of the command) to the printer. Enter:

```
DIR > PRN
```

The [>] character informs MS-DOS of the command's new destination.

Remember, PRN is a reserved filename which MS-DOS in turn redirects to the LPT1 port, thus a conventional filename can be used in its place. If you enter:

```
DIR > DIRLIST.DOC
```

you create a file called DIRLIST.DOC

This month Mike Hardaker explains Redirection, Pipes and Filters, and starts tying together the past few months' work with Project Menu.

which would contain the directory listing. If you want to add the contents of your C:\WORK directory to this file, you could then enter:

```
DIR C:\WORK >> DIRLIST.DOC
```

Note the double >>. This tells MS-DOS to add the data to the destination file – if you just used a single [>] it would create a new file called DIRLIST.DOC, which would replace the original.

PIPES

Redirection using [>] sends the output of a command to a file (the printer, when called PRN, is simply seen as a special file by MS-DOS). You can also use the output of one command as the input for another, creating your own functions by

chaining several of the standard commands together, using 'pipes'.

Pipes are defined by the [|] character (on your system this may be represented as a broken vertical line). This sits between two commands and tells MS-DOS to run the second program on the output generated by the first. To see this in action, enter:

```
DIR | MORE
```

The MORE command breaks its input into 24-line chunks and waits for you to press a key before proceeding. If your directory is just one screenful, it will seem like the standard command. You can do the same thing with the /P switch on DIR, but MORE can be used with other commands. It is useful if you want to

PROJECT MENU

Being able to select your programs from a menu of options can save a lot of time. You can buy sophisticated menuing systems for the PC, but with the commands we've covered over the past few months it is possible to create a simple menu 'program' just using MS-DOS. This month we'll look at the basics, while in next month's *Project Menu* we will be diving deeper into MS-DOS batch files in order to polish up the whole thing.

First of all, let's create a special directory for the files. Go to the root directory of your disk (with CD\) and enter MD MENU. This creates a directory called \MENU. Change to that directory (CD MENU). Now, let's create the bit you'll see on screen.

This will be a batch file called MENU.BAT. To create it, you can use COPY CON, EDLIN or any text-editor or word processor which can generate plain ASCII files (such as WordStar's non-document mode). Everybody's options will be different, but it should look something like this.

```
@ECHO OFF (For MS-DOS 3.2 and earlier use ECHO OFF)
CLS
C:
CD \MENU
ECHO MAIN MENU
ECHO -----
ECHO 1. WordStar
ECHO 2. Lotus 1-2-3
ECHO 3. Run the PC PLUS Superdisk
ECHO 4. Copy WP files to A:\
ECHO 5. Run MS-DOS commands
PROMPT Enter a menu option's number $G
```

The @ECHO OFF is used to prevent MS-DOS commands from being displayed on screen and CLS clears the screen (a bit of tidying up). The drive and directory changes are just a bit of a safety net, in case MENU.BAT is called from another directory. The next line, however, introduces something new.

If you want to write some text to the display as part of a batch file, you can use the ECHO command – the following text will then appear. Since ECHO is OFF (thanks to the first line of the file) the actual word 'ECHO' does not appear. Note that each of the menu options is preceded by a number.

The final line uses the PROMPT command to give you something rather friendlier than C:\ – the final \$G tells MS-DOS to place a [>] character on screen.

If you try running MENU.BAT now you will see how the menu looks – of course it doesn't actually do anything yet, so enter PROMPT \$P\$G to prepare yourself for the next stage.

DO IT BY NUMBERS

Since the menu asks you to enter a number in order to access an option, it is straightforward to put some function behind those menu options by creating a sequence of batch files called 1.BAT, 2.BAT and so on. Here is my batch file for running the *SuperDisk*:

```
@ECHO OFF
CLS
PROMPT Enter C:\MENU\MENU to return to the Main Menu $G
ECHO Make sure the SuperDisk
ECHO is in Drive A: of the PC
PAUSE
```

WORKSHOP

TYPE a long document, perhaps using
TYPE LETTER.DOC | MORE.

FILTERS

Filters are special MS-DOS programs which alter their input in some way and then display (or print, or write-to-disk) the altered version. We have seen a filter in action with the **MORE** command – which displays text a screen at a time.

Another useful filter is provided by **MS-DOS – SORT**. This is used for sorting the lines of a file and then displaying the sorted version.

We also see the redirection of **SORT**'s standard input, which is anything you type after you enter **SORT**. Try doing this. Enter a random sequence of numbers (pressing [Enter] after each one) and then [Ctrl][Z]. If you want to see **SORT** working on a file, enter:

```
SORT < AUTOEXEC.BAT
```

You will see the lines which make up your **AUTOEXEC.BAT** file arranged in alphabetical order. Note that the redirection sign is used backwards, in order to make **AUTOEXEC.BAT** the input for the command. You can't use **AUTOEXEC.BAT > SORT**, for this would run **AUTOEXEC.BAT** instead of **SORT**! You can make some pretty sophisticated sorts by using two

```
C:\WINDOWS>dir > dirlist.doc
C:\WINDOWS>find "U" dirlist.doc | find ".EXE" | sort /r | more
DIRLIST.DOC  54592  5-04-90  9:32p
DIRLIST.DOC  10432  17-12-90  3:30p
DIRLIST.DOC  21116  1-05-90  3:00a
DIRLIST.DOC  8704  1-05-90  3:00a
DIRLIST.DOC  27432  22-11-90  9:24a
DIRLIST.DOC  17408  23-01-91  6:21p
DIRLIST.DOC  5584  1-04-90  11:49p
DIRLIST.DOC  19352  1-05-90  3:00a
DIRLIST.DOC  42528  17-12-90  3:59p
DIRLIST.DOC  106288  1-05-90  3:00a
DIRLIST.DOC  129476  6-01-91  3:23p
DIRLIST.DOC  53248  21-09-90  2:06a
DIRLIST.DOC  128288  3-10-90  3:23p
DIRLIST.DOC  78131  26-06-90  12:45a
DIRLIST.DOC  195288  17-12-90  3:58p
DIRLIST.DOC  38288  28-01-91  1:54a
C:\WINDOWS>
```

● Here you can see a filter in action. The **SORT** command has been used to produce a display of all the files with the **.EXE** extension

parameters, **/R** (for reverse order) and **/+<number>** (where **<number>** is the number of the column you want to use as the sort key). Try seeing **DIRLIST.DOC** in a different way by entering:

```
SORT /R /+10 < DIRLIST.DOC
```

This should sort your directories by file type, in reverse order. **SORT** can also be used with a pipe, by the way – **DIR | SORT** gives you a 'real-time' sorted directory listing.

The filters can be combined with pipes, if you want: try entering:

```
SORT /R < DIRLIST.DOC | MORE
```

If you want to see the results on a

printout, why not redirect them with

```
SORT /R < DIRLIST.DOC >PRN
```

FIND

Another command which can be used as a filter is **FIND**. This looks for specific text sequences in a file. To try it, enter:

```
FIND "KEYB" AUTOEXEC.BAT
```

You should be presented with the line in your **AUTOEXEC.BAT** file which includes **KEYB** or **KEYBUK**. If nothing happens, try this:

```
FIND "keyb" AUTOEXEC.BAT
```

You can chain **FIND** commands together (and other commands) with pipes, in order to get ever more specific information. For example, entering:

```
FIND "AUTO" DIRLIST.DOC |
FIND "BAT" | SORT > PRN
```

(as a single line) would locate all lines with **AUTO** in them, search this list for references to **BAT** (excluding any **AUTOEXEC.BAT**s or **AUTOEXEC.OLD**s), sort the results and then output the answer to your printer. If only one filename is printed, why not try again with different **FIND** parameters. ●

```
A:
CD\
PCPLUS
C:
CD\MENU
MENU
```

This tidies up the display in the first two lines, and then brings in another safety-net with a new prompt (explained below). Two lines are **ECHO**d to the screen to remind me that the *SuperDisk* must be in its drive, and I have included a **PAUSE** command to give me time to insert the disk in case I've forgotten. The batch file then changes to the A-drive, checks it is in the root directory, and calls **PCPLUS.COM**. I've then included the commands necessary to re-load **MENU.BAT**. You sometimes leave a program via unorthodox means so I've made sure the instructions to re-load **MENU.BAT** are included in a prompt if this bit of the file doesn't work.

Using the same general principles, it should be pretty straightforward to create the rest of the batch files for your own programs. For a final example, here's **5.BAT** for the sample menu – it gives a rather better environment for running MS-DOS commands than you would get if you left **MENU.BAT**'s prompt on-screen:

```
@ECHO OFF
CLS
CD\
PROMPT Enter C:\MENU\MENU for the Main Menu $_$_$P$G
```

This prompt includes the **'\$_'** sequence, which puts a carriage return character into the prompt.

One thing to look out for, is that you can't 'run' a batch file from

within the middle of another batch file. As soon as you start to execute the instructions of the second batch file you will find that control is never going to return to the first one to finish off any instructions there. If you already have batch files set up to run some of your programs (and some application programs may set these up for you automatically) then you may need to add these instructions to the batch file for the menuing system, rather than try to run one batch file from another.

When your numbered batch files have all been finished you will have a simple menuing system for your PC. OK, so maybe it's not too elegant – but next month we'll make it look as smart as a professional program.

HELP US TO HELP YOU

Why not take this opportunity to ask all those niggling questions to which you have been unable to find a satisfactory answer.

There's space here for three but if your list is longer, please write them on a separate sheet. Answers will either be incorporated into future articles or answered on this page.

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Active Life for DOS	2		MF Zortech Library	3		Am's First Primer. Superb 4-8 year old skills tutor (colour monitor)	2		AB/D8/Assembler	1		6000 Words. For updating spell checkers etc	1		Command Post/Icons: A full featured menu system, plus 93 more icons	1	
Active Life for Windows	1		Module 2 Compiler	3		Animated Alphabet. Animated graphical word teacher (EGA/VGA)	2		Assembly Utilities	1		Black Magic. Hypertext editor/viewer	3		SEDT for Windows: A massive text editor	1	
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Advanced Utilities II	1		PDS "Base"	1		Assembler Tutor	1		Basic Utilities 2	1		Lotus 123 Tutor	1		MS Windows Desktop Top Tools 2: Contains Alarm, Almanac, Midas, Timelord and satellite finder	1	
Alt V2.07 Memory Resident	1		Personal C Compiler	1		Basic Tutorial 1	1		Basic Utilities 3	1		Lotus Worksheets 3	1		MS Windows Desktop Top Tools 1: A complete Desktop management program	1	
Integrated Multitasking Program	2		Programming Support	1		Basic Tutorial 2	2		Basic Utilities 4	1		Lotus Worksheets 4	1		MS Windows Desktop Top Tools 2: Contains Alarm, Almanac, Midas, Timelord and satellite finder	1	
Anakany: Powerful command line editor similar to DosEdit & CED	1		QBTRIE	1		Calculus Physics. Physics tutorial	2		Basic Utilities 5	1		Lotus Worksheets 5	1		MS Windows Desktop Top Tools 3: 9 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Assembler Utilities	1		Quickbasic Aids	1		Calculus Science. Test to GCSE level science	1		Basic Utilities 6	1		Lotus Worksheets 6	1		MS Windows Desktop Top Tools 4: 4 more programs including Aporia, an icon-based file manager (PC Plus - Jan 1991)	1	
Automenu: Powerful front end menuing system	1		Screen Design Aid	1		Calculus Thesaurus	1		Basic Utilities 7	1		Lotus Worksheets 7	1		Wilson Windowware: Applets, Browser and Command Post	1	
Bakers Dozen	1		Screen Machine	1		Exam Bank	1		Basic Utilities 8	1		Lotus Worksheets 8	1		Windows Wallpaper 1: 12 .BMP pictures, editable via MS Paint Brush	1	
Batch Utilities 1	1		Snap Version 4.02	1		French Tutor	1		Basic Utilities 9	1		Lotus Worksheets 9	1		Windows Wallpaper 2: 10 different tools including screen blanking	1	
Batch Utilities 2	1		SPL	1		Happy Games. Childrens tutorial games (CGA + joystick)	1		Basic Utilities 10	1		Lotus Worksheets 10	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Batch Utilities 3	1		Technojobs Toolbox	2		Kid Paint. Childrens Painting program (EGA)	1		Basic Utilities 11	1		Lotus Worksheets 11	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Beginners Needs. Useful set of utilities for the novice	1		TSR Download	1		Kindermath. Childrens Maths games	1		Basic Utilities 12	1		Lotus Worksheets 12	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Command Post & Icons. Full featured menu system for windows	1		Turbo Screenshot	1		Kindermath. Childrens Maths games	1		Basic Utilities 13	1		Lotus Worksheets 13	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Disk Commando. Shareware clone of Norton	2		Window Boss	3		Kindermath. Childrens Maths games	1		Basic Utilities 14	1		Lotus Worksheets 14	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Disk Map Program & SS	2		Window Boss/Data Clerk	3		Kindermath. Childrens Maths games	1		Basic Utilities 15	1		Lotus Worksheets 15	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
DOS Utilities 1	1		Workbase	1		Kindermath. Childrens Maths games	1		Basic Utilities 16	1		Lotus Worksheets 16	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
DOS Utilities 2	1		As Easy As. Lotus 123 Clone	1		Kindermath. Childrens Maths games	1		Basic Utilities 17	1		Lotus Worksheets 17	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
DOS Utilities 3	1		As Easy As. Easy to use Spread-sheet (DOS 3.0 or higher)	1		Kindermath. Childrens Maths games	1		Basic Utilities 18	1		Lotus Worksheets 18	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
EGA Utilities	1		Instacalc. Pop-up TSR Lotus like spreadsheet	1		Kindermath. Childrens Maths games	1		Basic Utilities 19	1		Lotus Worksheets 19	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Efftree: Full featured disk manager	1		Lotus Gendler	1		Kindermath. Childrens Maths games	1		Basic Utilities 20	1		Lotus Worksheets 20	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Encryption 2	1		Lotus Tools & Add-Ons	1		Kindermath. Childrens Maths games	1		Basic Utilities 21	1		Lotus Worksheets 21	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Encryption/Security	1		Lotus Worksheets 1	1		Kindermath. Childrens Maths games	1		Basic Utilities 22	1		Lotus Worksheets 22	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
File Managers 3	1		Lotus Worksheets 2	1		Kindermath. Childrens Maths games	1		Basic Utilities 23	1		Lotus Worksheets 23	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
File Security	1		Lotus Worksheets 3	1		Kindermath. Childrens Maths games	1		Basic Utilities 24	1		Lotus Worksheets 24	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
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Hard Disk Utilities	1		Lotus Worksheets 6	1		Kindermath. Childrens Maths games	1		Basic Utilities 27	1		Lotus Worksheets 27	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Intermediate Needs	1		Lotus Worksheets 7	1		Kindermath. Childrens Maths games	1		Basic Utilities 28	1		Lotus Worksheets 28	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Keyboard Utilities	1		Lotus Worksheets 8	1		Kindermath. Childrens Maths games	1		Basic Utilities 29	1		Lotus Worksheets 29	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Magic Menu	1		Lotus Worksheets 9	1		Kindermath. Childrens Maths games	1		Basic Utilities 30	1		Lotus Worksheets 30	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Master Key: Hex, sector disk editor, excellent	1		Lotus Worksheets 10	1		Kindermath. Childrens Maths games	1		Basic Utilities 31	1		Lotus Worksheets 31	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Menu Construction Set	2		Lotus Worksheets 11	1		Kindermath. Childrens Maths games	1		Basic Utilities 32	1		Lotus Worksheets 32	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Back and Forth. Flexible and fast task manager	2		Lotus Worksheets 12	1		Kindermath. Childrens Maths games	1		Basic Utilities 33	1		Lotus Worksheets 33	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
NARC. Friendly front end manager for ARC files	1		Lotus Worksheets 13	1		Kindermath. Childrens Maths games	1		Basic Utilities 34	1		Lotus Worksheets 34	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Newkey. Super keyboard enhancer like Prokey, Smartkey etc	1		Lotus Worksheets 14	1		Kindermath. Childrens Maths games	1		Basic Utilities 35	1		Lotus Worksheets 35	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Newspace. Program for compressing data on hard disks, leaving them usable	1		Lotus Worksheets 15	1		Kindermath. Childrens Maths games	1		Basic Utilities 36	1		Lotus Worksheets 36	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Partitions Utilities	1		Lotus Worksheets 16	1		Kindermath. Childrens Maths games	1		Basic Utilities 37	1		Lotus Worksheets 37	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
PC Iris Security program	1		Lotus Worksheets 17	1		Kindermath. Childrens Maths games	1		Basic Utilities 38	1		Lotus Worksheets 38	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
PK Lite Compress. EXE files, leaving them usable	1		Lotus Worksheets 18	1		Kindermath. Childrens Maths games	1		Basic Utilities 39	1		Lotus Worksheets 39	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
PK Zip File compression program for backup	1		Lotus Worksheets 19	1		Kindermath. Childrens Maths games	1		Basic Utilities 40	1		Lotus Worksheets 40	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
PK Zip's friends. Utilities for PK Zip	1		Lotus Worksheets 20	1		Kindermath. Childrens Maths games	1		Basic Utilities 41	1		Lotus Worksheets 41	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Point/Shoot/Backup/Restore	1		Lotus Worksheets 21	1		Kindermath. Childrens Maths games	1		Basic Utilities 42	1		Lotus Worksheets 42	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Power Menu V5.32. Front end menuing system & disk Manager	2		Lotus Worksheets 22	1		Kindermath. Childrens Maths games	1		Basic Utilities 43	1		Lotus Worksheets 43	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Recovery Tools	2		Lotus Worksheets 23	1		Kindermath. Childrens Maths games	1		Basic Utilities 44	1		Lotus Worksheets 44	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Route Directory	1		Lotus Worksheets 24	1		Kindermath. Childrens Maths games	1		Basic Utilities 45	1		Lotus Worksheets 45	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Scout. Where's file hunter	1		Lotus Worksheets 25	1		Kindermath. Childrens Maths games	1		Basic Utilities 46	1		Lotus Worksheets 46	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Screen Utilities	1		Lotus Worksheets 26	1		Kindermath. Childrens Maths games	1		Basic Utilities 47	1		Lotus Worksheets 47	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
SEDT for MS-DOS	1		Lotus Worksheets 27	1		Kindermath. Childrens Maths games	1		Basic Utilities 48	1		Lotus Worksheets 48	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
SEDT for MS-Window	1		Lotus Worksheets 28	1		Kindermath. Childrens Maths games	1		Basic Utilities 49	1		Lotus Worksheets 49	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Services V3.0. File & Disk Manager	2		Lotus Worksheets 29	1		Kindermath. Childrens Maths games	1		Basic Utilities 50	1		Lotus Worksheets 50	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
SWG Utility Set	1		Lotus Worksheets 30	1		Kindermath. Childrens Maths games	1		Basic Utilities 51	1		Lotus Worksheets 51	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Special Needs	1		Lotus Worksheets 31	1		Kindermath. Childrens Maths games	1		Basic Utilities 52	1		Lotus Worksheets 52	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Special Utilities	1		Lotus Worksheets 32	1		Kindermath. Childrens Maths games	1		Basic Utilities 53	1		Lotus Worksheets 53	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Utilities for the AT	1		Lotus Worksheets 33	1		Kindermath. Childrens Maths games	1		Basic Utilities 54	1		Lotus Worksheets 54	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Utilities I	1		Lotus Worksheets 34	1		Kindermath. Childrens Maths games	1		Basic Utilities 55	1		Lotus Worksheets 55	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Utilities II	1		Lotus Worksheets 35	1		Kindermath. Childrens Maths games	1		Basic Utilities 56	1		Lotus Worksheets 56	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Virus Protection Tools	1		Lotus Worksheets 36	1		Kindermath. Childrens Maths games	1		Basic Utilities 57	1		Lotus Worksheets 57	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Virus Scan	1		Lotus Worksheets 37	1		Kindermath. Childrens Maths games	1		Basic Utilities 58	1		Lotus Worksheets 58	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Virus Self Defence Kit	1		Lotus Worksheets 38	1		Kindermath. Childrens Maths games	1		Basic Utilities 59	1		Lotus Worksheets 59	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
VMIX 286 Multitasking DOS spell	1		Lotus Worksheets 39	1		Kindermath. Childrens Maths games	1		Basic Utilities 60	1		Lotus Worksheets 60	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
VMIX 386	1		Lotus Worksheets 40	1		Kindermath. Childrens Maths games	1		Basic Utilities 61	1		Lotus Worksheets 61	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Wilson Windowware	1		Lotus Worksheets 41	1		Kindermath. Childrens Maths games	1		Basic Utilities 62	1		Lotus Worksheets 62	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Windows Icons	1		Lotus Worksheets 42	1		Kindermath. Childrens Maths games	1		Basic Utilities 63	1		Lotus Worksheets 63	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Windows Tools	1		Lotus Worksheets 43	1		Kindermath. Childrens Maths games	1		Basic Utilities 64	1		Lotus Worksheets 64	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Windows Tools 2	1		Lotus Worksheets 44	1		Kindermath. Childrens Maths games	1		Basic Utilities 65	1		Lotus Worksheets 65	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Windows Tools 3	1		Lotus Worksheets 45	1		Kindermath. Childrens Maths games	1		Basic Utilities 66	1		Lotus Worksheets 66	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Windows Tools 4	1		Lotus Worksheets 46	1		Kindermath. Childrens Maths games	1		Basic Utilities 67	1		Lotus Worksheets 67	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
Windows Wallpaper 1	1		Lotus Worksheets 47	1		Kindermath. Childrens Maths games	1		Basic Utilities 68	1		Lotus Worksheets 68	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
X-Directory 3.0 File and disk manager	1		Lotus Worksheets 48	1		Kindermath. Childrens Maths games	1		Basic Utilities 69	1		Lotus Worksheets 69	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	
XTRIE	1		Lotus Worksheets 49	1		Kindermath. Childrens Maths games	1		Basic Utilities 70	1		Lotus Worksheets 70	1		MS Window Tools: 3 more tools for windows applications, including SkyGlass, a 16 times magnification facility	1	